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COMPLETE OCCLUSION OF THE EXTERNAL AUDITORY CANAL BY A DERMOID MEMBRANE;
AN EVIDENCE OF HORIZONTAL MOTION OUTWARD IN THE EPIDERMIS OF THE CANAL.

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MRS. S., aged 50, consulted me in the summer of 1876 for deafness of slight degree, referable chiefly to the left ear, and of about one year's duration. Examination with the speculum and reflected light revealed the following condition of things in the left ear: In the osseous portion of the external auditory canal, at a point about one third of an inch from the drum membrane, a membranous structure completely occluded the canal. To the eye this membrane presented all the appearances of ordinary cuticle. At no point did it afford the slightest evidence of being provided with blood-vessels. When touched with the probe it yielded to the pressure in precisely the same elastic manner as would any thin membrane like the cuticle when separated from its underlying connections. The peripheral portion of the membrane was carefully tested with the probe at all points of the circumference, for the purpose of ascertaining the nature of its attachment to the skin of the external auditory canal. At every point it was found to be continuous with the cuticle of the neighboring skin. The plane of the membrane was nearly at right angles to the axis of the canal. A crucial incision was made, and the fragments of the membrane were in part removed by the forceps, in part left undisturbed. At the points where the attached fragments of membrane had been torn off, no evidence of any line of attachment remained, beyond at most a diffuse redness of the skin.

The drum membrane beyond presented a fairly normal appearance, and the hearing was somewhat improved by the removal of the obstacle.

This case, which is entirely different in its pathogenesis from the one which I reported in 1874,¹ derives its chief importance from the light which it throws upon the question of horizontal or surface motion in the epidermis of the membrana tympani and skin of the external auditory canal. That such a motion exists on the outer surface of the drum membrane has been known for several years. Every aural surgeon who has had occasion to perform paracentesis of the membrana tympani has observed how from day to day the scab resulting from his incision moves from its original situation in the posterior half of the membrane, midway between the umbo and the periphery, toward the latter, and eventually, in its outward course, leaves the drum membrane entirely. The same motion has been observed in the external auditory canal in the immediate vicinity of the membrana tympani. Dr. Burnett, in his "Treatise on the Ear" (p. 46), speaks of this outward movement of the skin of the external auditory canal as affording an explanation of the way in which the superabundant cerumen is extruded from the canal. This surface movement, then, of the epidermis of the drum membrane and external auditory canal furnishes, I believe, an explanation of the presence — in the case narrated above — of a cuticle-like, membranous diaphragm in the outer canal of the ear. This membrane, according to this theory, would represent a desquamation — probably the result of an acute congestion of the parts — of the entire epidermal coat of the drum membrane. That part of the cuticle of the membrana tympani which had separated from the underlying living epithelial cells must, in the present instance, have retained (at all points of the circumference) its connections with the neighboring healthy cuticle of the external auditory canal. The surface motion known to

¹ *Transactions of the American Otological Society*, Case III., in article entitled, "Ultimate Forms of Granulation Tissue in the Ear."

exist in the cuticle of the deeper portion of the canal extends without doubt throughout the entire canal. Hence, in the present case, after separation of the cuticle had taken place on the drum membrane, the centrifugal motion of the remoter parts of the separated membrane—due to the traction exerted by the outwardly moving healthy cuticle of the external auditory canal—must have produced at first merely a state of tension (equilibrium) in the central portions of the cuticular membrane. At a later moment, however, this outward motion of the healthy cuticle must have exerted a symmetrical outward traction upon the cuticular membrane, eventually lifting it completely off the underlying membrana tympani. That in this particular case a rupture did not occur at some point must be ascribed simply to the fact that probably all things conspired to favor a separation of the desquamated cuticle in its entirety. After the act of separation had once taken place, there was no reason why the separated cuticle (now an independent diaphragm) should not remain unbroken, until acted upon by some force from without. If different parts of the healthy cuticle of the external auditory canal traveled outward at different rates of speed, we might look for a rupture, or at least for a distorted cuticular diaphragm. The flatness of the membrane, in the present case, and the inclination of the plane which it occupied, would rather favor the view that the rate of speed is the same for all parts of the canal.

Further observations and experimental researches will doubtless soon determine accurately all the facts connected with this peculiar horizontal cuticular motion, analogous to the growth of the nail, which may be looked upon as a cuticular structure.

